"Creative Project Delivery" Alternative Methods

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California Department of Transportation
District 4
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Caltrans Mission Statement

"Improve Mobility Across California"

To keep California moving, Caltrans is committed to these goals:

- PERFORMANCE
  - Deliver record levels of transportation system improvements
- RELIABILITY
  - Reduce traveler delays due to roadwork and incidents
- FLEXIBILITY
  - Make transit a more practical travel option
- PRODUCTIVITY
  - Improve the efficiency of the transportation system
- SAFETY
  - Achieve the best safety record possible

Alternative Delivery Methods are Vital to our "Mission"

- A+B Bidding
  - Contractor sets the working days (WD)
- Incentives / Disincentives
  - Milestone clauses
- Design Sequencing
  - Construction begins prior to receiving final plans

A+B Bidding

Mandatory on projects over $5 Million

A+B BIDDING SPECIAL NOTICE

The bidder's attention is directed to Section 2, "Proposal Requirements and Conditions," Section 3-1.01B, "Award and Execution of Contract," and Section 4, "Beginning of Work, Time of Completion and Liquidated Damages," in the special provisions. In addition to the item prices and totals, the proposal shall set forth the number of working days bid to complete all work on the contract. All bids will be compared on the basis of the sum of the item totals on the Engineer's Estimate for all work to be done (TOTAL BID (A)), plus the product of the number of working days bid to complete all work and the cost per day shown on the Engineer's Estimate (TOTAL BID (B)). The lowest bid will be determined on the basis of the "Total Basis for Comparison of Bids (A+B)" set forth in the Engineer's Estimate.

Bids in which the number of working days bid for completion of the work exceed the maximum number of days specified will be considered non-responsive and will be rejected.

ENGINEER'S ESTIMATE
04-006034

TOTAL BID (A): = _____

TOTAL BID (B): = _____

$ 35,000.00 (Cost Per Day) **x** _____ (Working Days Bid) (Not To Exceed 1280 Days)

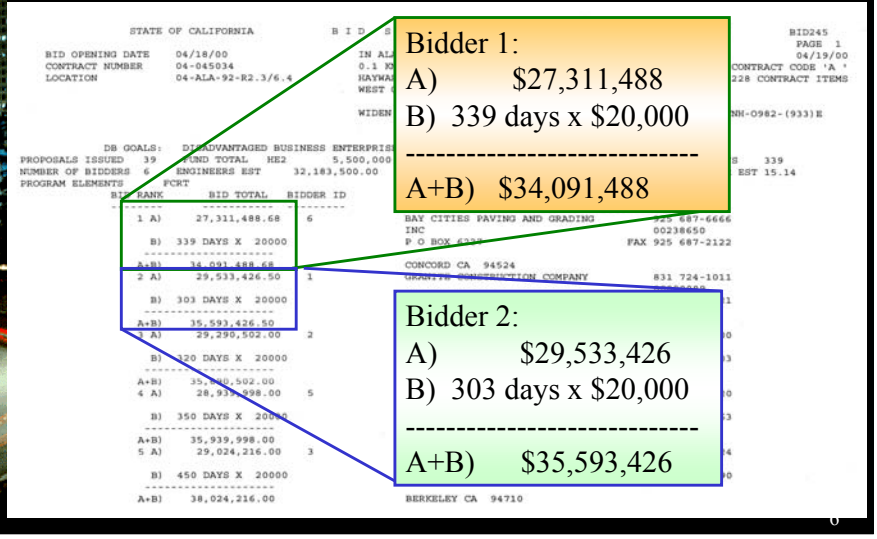
BASIS FOR COMPARISON OF BIDS:
(A) + (B) = _____

Notes:
1. TOTAL BID (A) is the grand total of the Item Totals in the Engineer's Estimate.
2. Working Days Bid is defined in the Special Provisions.

A+B Bidding

- Lowest bidder selected by the combined cost of contract bid items (A) plus time (B)
- Maximum WD are specified
- "B" component based on Road User Cost + CM support (not to exceed LD's)
- "B" component becomes contract duration

A+B: Bid Summary



A+B Bidding Benefits & Limitations

- Benefits
  - Construction value is more efficient
  - Encourages scheduling innovation by providing bid incentives for contract time
  - Time adjusted to Contractor's bid "B"
- Limitations
  - Accelerated projects time is critical
  - Staff resources are over-extended
  - Functional units have an unbalanced work load

Currently 30 States are Implementing A+B Bidding

- Arkansas
- California
- Colorado
- Delaware
- District of Columbia
- Georgia
- Idaho
- Indiana
- Iowa
- Kentucky
- Maine
- Maryland
- Michigan
- Minnesota
- Mississippi
- Missouri
- Nebraska
- Nevada
- New York
- North Carolina
- North Dakota
- Ohio
- Oklahoma
- Pennsylvania
- South Carolina
- Texas
- Utah
- Virginia
- Washington
- Wisconsin

Primer on Contracting for the Twenty-First Century
4th Edition 2001, AASHTO

Incentives / Disincentives

Milestone clauses

Incentives Help Complete Critical Projects Quickly

- Incentives
  - CRIP process
  - Value analysis
  - Milestone and early completion payments
  - Minimize weekend closures ($500K / weekend)
- Disincentives
  - Late opening of lane closures ($8,500 / 10min)
  - Milestone and project completion liquidated damages

Incentive Limitations Should be Considered

- Social/economic impacts, truck traffic, length and type of detours, safety, public relations, etc.
- Funding must be assured and included under dedicated Supplemental Work
- Federally funded “oversight” projects require calculation approval of I/D amounts
- Time extensions affecting I/D completion dates should be carefully considered since significant claims may result

Design Sequencing

Assembly Bill 405 & 2607
(Knox - 1999)

Caltrans

Assembly Bills 405 & 2607

- Design Sequencing promoted as a project acceleration tool
- Pilot program for 12 projects
- Projects geographically balanced
- Diverse projects
- Annual evaluation
- Pilot program ends January 1, 2005

Design Sequencing Project Criteria

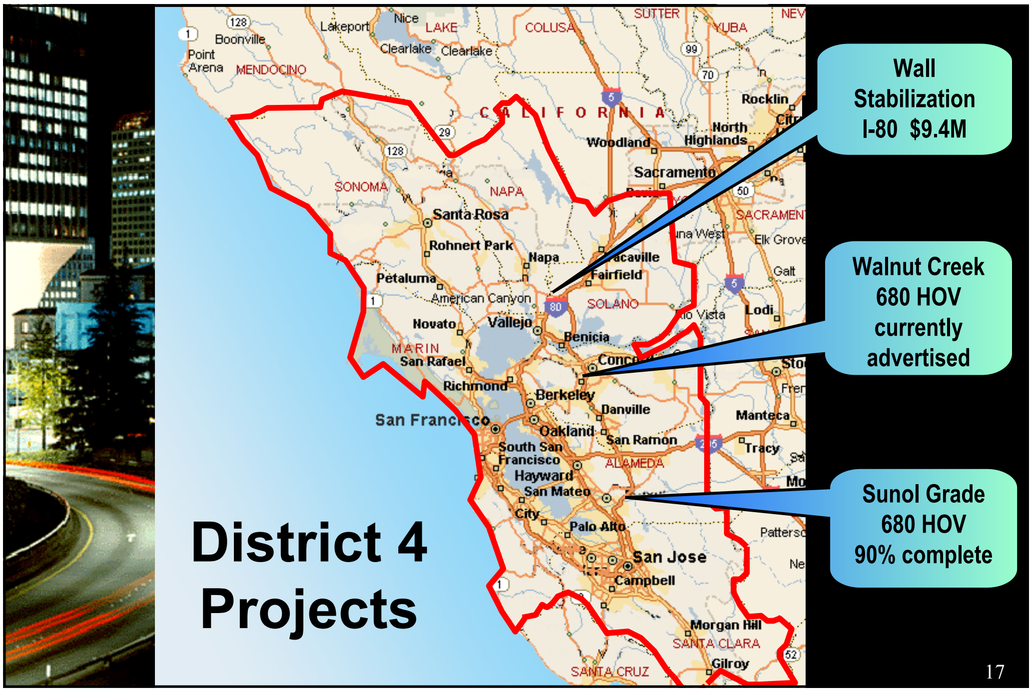
- Environmental document approved for entire project
- Right of way certified for each project segment
- No changes in scope are allowed after project and environmental approval

Bid Package Requirements

- Specifications include delivery schedules for all subsequent phases
  - Initial phase required to be 100% complete
  - Subsequent phases as little as 30% complete
- Estimates include all anticipated items with the understanding some may be revised

- 10 Projects Currently Selected:
  - Sound walls
  - Carpool lanes
  - Slope Stabilization
  - Freeway Reconstruction
  - Lane additions
  - New Freeway I-905

Estimated Constructed Value $431 Million


District 4
Projects
Wall
Stabilization
I-80 $9.4M
Walnut Creek
680 HOV
currently
advertised
Sunol Grade
680 HOV
90% complete
C A L I F O R N I A
Santa Rosa
Rohnert Park
Petaluma
Napa
Fairfield
Vallejo
Novato
San Rafael
Benicia
Richmond
Berkeley
San Francisco
Oakland
Danville
San Ramon
South San Francisco
Hayward
San Mateo
Palo Alto
San Jose
Campbell
Morgan Hill
Gilroy
Sacramento
Woodland
Lodi
Manteca
Tracy
17


• Contract Amount $20 M
• Contract Days 240
• Weather Days 91*
• CCO Days 51*
• Est.Completion Early 2003*
Sunol Grade I-680 Widening
ADT = 125,000

Sunol Grade Specifications

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IMPORTANT SPECIAL NOTICES

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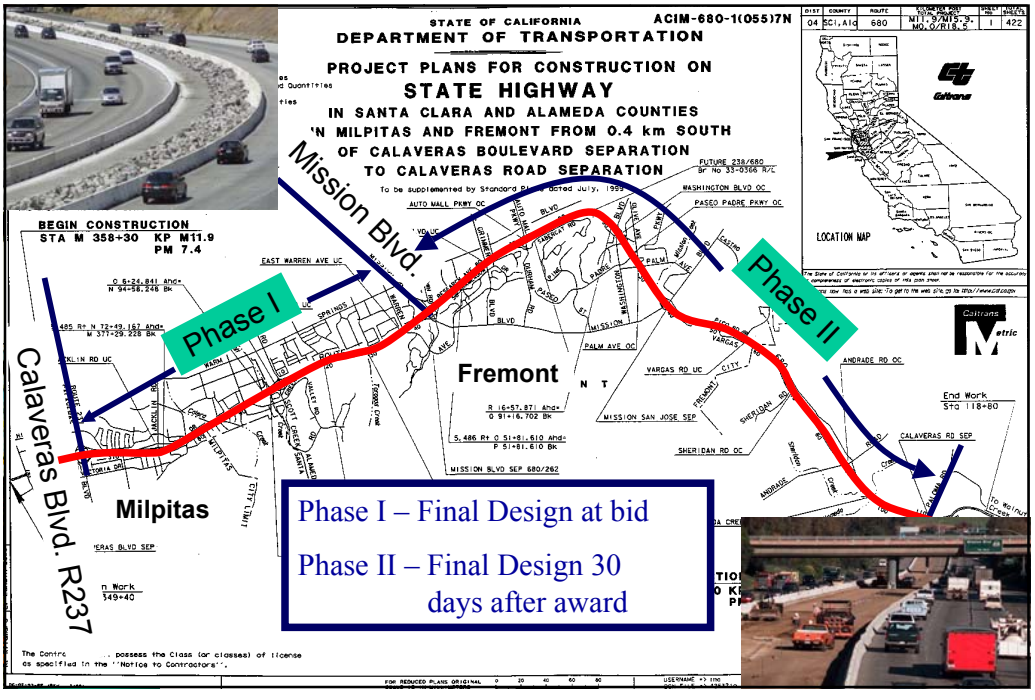
"Design Sequencing"

- This project is part of a pilot program for "Design Sequencing", per Section 217, et seq., of the Streets and Highways Code (Assembly Bill 405). The purpose of the pilot program is to evaluate Design Sequencing as a tool for acceleration of project completion. Design Sequencing is a method of contracting where bids are based on partial project design, and final design activities are sequenced to permit each construction phase to commence when the design for that phase is complete, before the design of the entire project is complete. The project plans and specifications for this project are not considered complete to construct the work anticipated by the contract, and the Engineer's Estimate may contain anticipated items of work that are not indicated on the project plans. Design, and final project plans, specifications and estimate of quantities, will be completed during construction.



Sequencing Saved Significant Design Time

- Reduced review time by D.O. and HQ Office Engineer
- Design time reduced by 4-6 months
- Contract awarded in summer
  - Gained one construction season
  - Earlier completion

Contract Documents Were Significantly Changed

- Changed Special Provisions:
  - 18 sections modified
  - 15 new contract items added
  - 43 items required quantity adjustments
    - 35% of the original bid items
- 422 Contract Plan Sheets replaced

Project Challenges Should be Considered Carefully

- Increase in support costs after project award
  - Engineering efforts for modified plans
- Change Order analysis and negotiation
  - Change in Character
  - Quantity adjustments beyond 25%
  - Items work monitored at force account
- Uncompetitive bidding on added items

Sunol Grade Construction Impacts

- Changed scope of work on some bid items:
  - Change of Character (Drainage Work)
  - Effect of changes on CPM
    - Time delay cost: $8000/day
  - Multiple mobilizations increase costs
  - Changed items increased contract time 25%

Cost Identification Measures

- Adequate attention to specification development
- Contingency or supplemental fund analysis
- Special Provisions modifications to address:
  - Change in Character
  - Increased/decreased quantities >25%
  - Deleted items

Lessons Learned

- Partnering between State agencies and contractor assures success
- Contingency balances have to be carefully monitored
- Experienced CPM scheduler and cost controls coordinator required
- Negotiate CCO costs and time delays ASAP

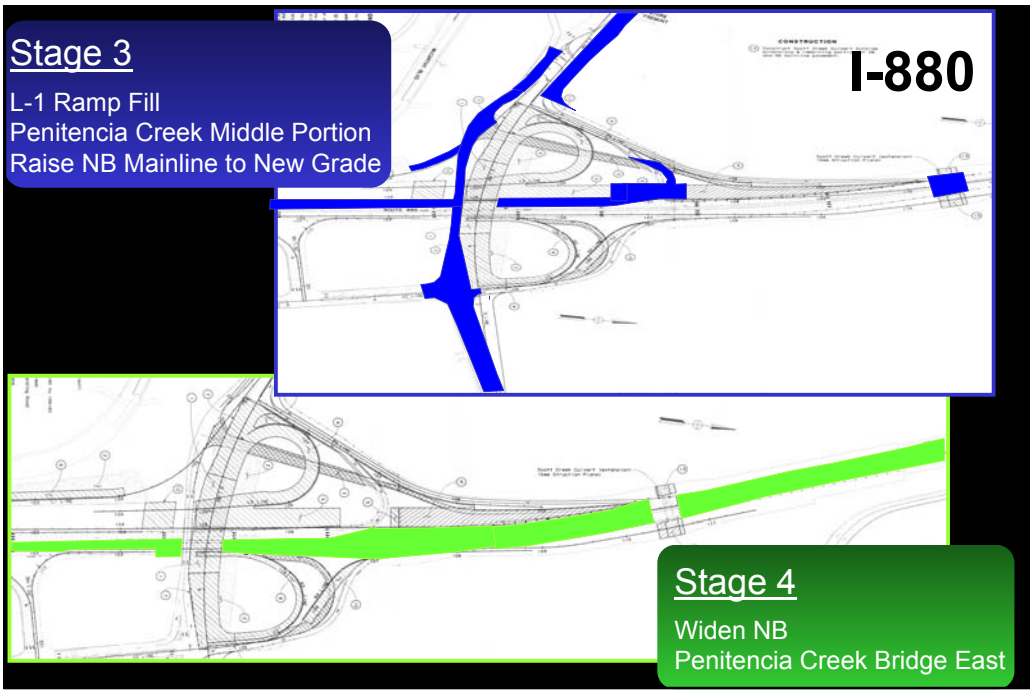
Projects That Could Benefit from Incentives/Disincentives and Design Sequencing

- Environmental Constraints
- Stage Construction
- Milestone targets

I-880 Dixon Landing Rd

- One of the busiest commute corridors in Silicon Valley
- Widen Overcrossing
- Additional HOV lanes
- Modify on-ramps

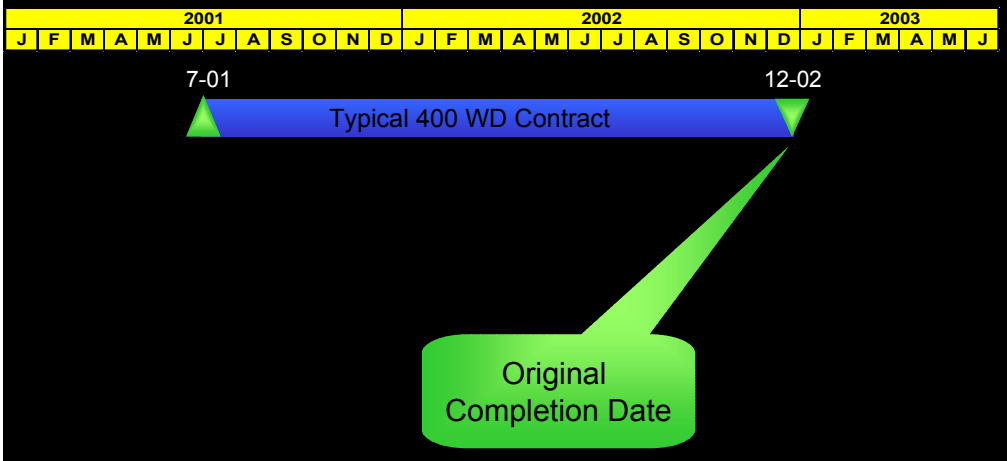

Stage 1
Widen SB & NB
L-3 Off Ramp
I- 880
Stage 2
Widen SB
Penitencia Creek Bridge West
New Dixon Bridge

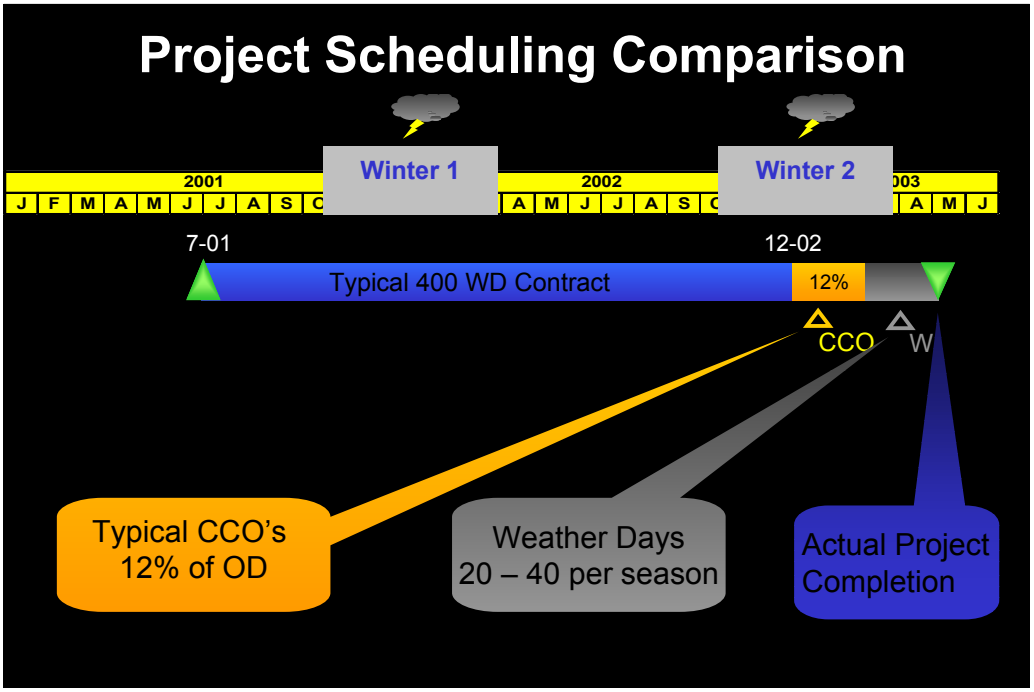

Stage 3
L-1 Ramp Fill
Penitencia Creek Middle Portion
Raise NB Mainline to New Grade
I-880
Stage 4
Widen NB
Penitencia Creek Bridge East

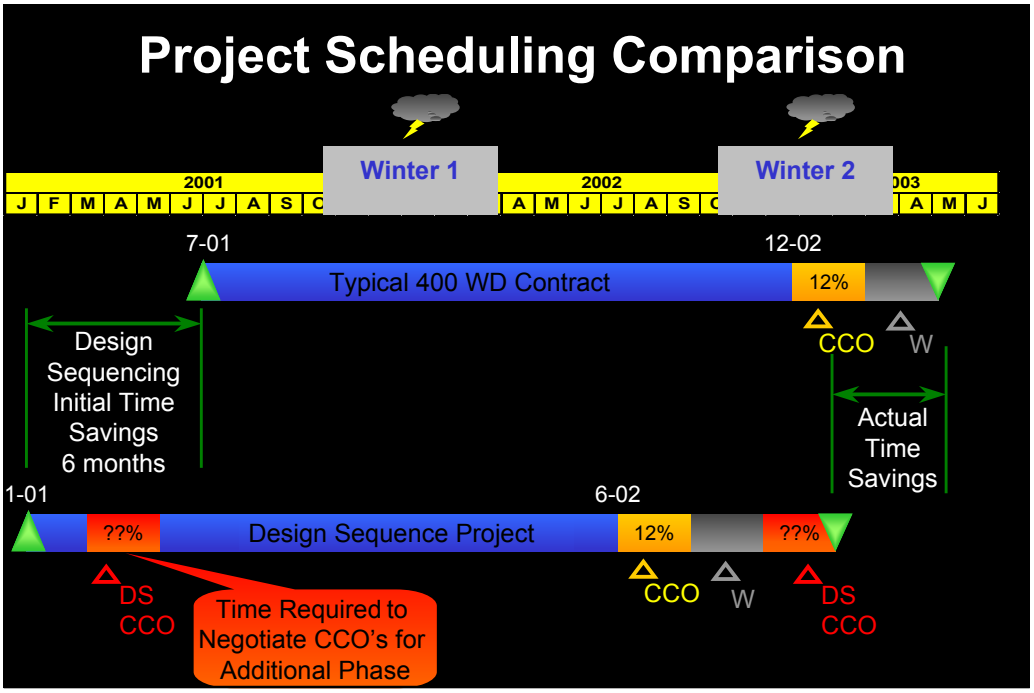
Ideal Candidate for "Creative Project Delivery"

- Phased Award
  - Phase 1 - Embankments
  - Phase 2 - Interchange
    - 4 Stages of work
- Stream permit restrictions
- Delays push remaining work to next period (domino effect)

Project Scheduling Comparison




Project Scheduling Comparison
Winter 1
Winter 2
2001
2002
J F M A M J J A S O
A M J J A S O
A M J
7-01
12-02
Typical 400 WD Contract
12%
CCO
W
Typical CCO's
12% of OD
Weather Days
20 – 40 per season
Actual Project
Completion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J F M A M J J A S O
A M J J A S O
A M J
7-01
12-02
Typical 400 WD Contract
12%
CCO
W
Design
Sequencing
Initial Time
Savings
6 months
Actual
Time
Savings
1-01
6-02
??%
Design Sequence Project
12%
??%
DS
CCO
Time Required to
Negotiate CCO's for
Additional Phase
CCO
W
DS
CCO

Discussion

- A+B Bidding
- Incentives / Disincentives
- Design Sequencing

Presentation Available at http://www.dot.ca.gov/dist4

AASHTO Value Engineering Awards

- Given to state transportation agencies that have shown special achievement in either cost effectiveness or innovation
- California Department of Transportation was recognized in 2001